

REMARKS

Claims 1-12 were presented for examination and were pending in this application. In the latest Office Action, claims 1-12 were rejected. With this amendment, claims 1, 2, 4, 5, 10, and 11 are amended, claims 8, 9, and 12 are canceled, and new claims 13-23 are added. On the basis of the following remarks, consideration of this application and the early allowance of all pending claims are requested.

I. Objections to the Drawings

The examiner objected to the drawings on the grounds that they do not show every feature of the invention specified in the claims. Specifically, the examiner objected that the drawings do not show the group of laterally separated emitter electrodes (from claim 2) or the dual dielectric layer (from claim 3).

To address these objections, the “the group of laterally separated emitter electrodes” has been canceled from claim 2. In addition, new Fig. 5 has been added to illustrate the dual dielectric layer embodiment described in the specification, for example, at page 16, lines 17-20. The specification has also been amended to accommodate the new Fig. 5.

II. Objections to the Specification and Claims

The specification and claims have been amended to address the examiner’s objections.

III. Claim Rejections – 35 U.S.C. § 102

Claims 2, 5, and 6 were rejected as anticipated by U.S. Patent No. 5,828,163 to Jones et al. Based on the following, Applicants respectfully assert that the claims, as amended, are novel and nonobvious over Jones.

The claims recite an electron-emitting device for which a seed layer is used to facilitate the growing of electron-emissive elements on the device in electrical communication with an emitter electrode. This seed layer includes multiple sections that are laterally separated over the emitter electrode. For example, independent claim 2 recites a device that includes a multiplicity of electron-emissive elements “grown from a seed layer that includes a plurality of unconnected sections above the emitter electrode.” As the specification explains, this sectioned seed layer isolates groups of electron-emissive elements grown on the seed layer, which provides a number of advantages over previous solutions.

One such advantage is to avoid the deleterious affect that can result due to variations in the length and/or quality of the electron-emissive elements for a given pixel or subpixel. Variations in length or quality of the electron-emissive elements can cause a few of the groups of elements that have a low value of voltage to become the primary source of electron emitting for the entire group of elements – rather than emitting electrons from most of the group of elements. In such a case, the elements acting as the primary source of electron emitting could cause emitter degradation. By having electrically separated groups of electron-emissive elements (e.g., by sectioning the seed layer), the performance of some groups of electron-emissive elements are not affected by variance in the length or quality of other groups of elements for a given pixel or subpixel (in the case of a multi-color display) in a display.

Like the prior art device shown in Fig. 1 of the application, the device described in Jones does not have a seed layer with a plurality of unconnected sections. Even assuming that Jones’s “low resistance pads” (138 and 139) are a seed layer,¹ as claimed, those pads extend in a

¹ As described in Jones, col. 7, lines 10-13, it Jones’s conductive pads do not appear to be the same as or equivalent to the claimed seed layers; however, in light of the observation that those conductive pads are not sectioned, this issue is irrelevant.

continuous manner over the emitter electrode for a given emitter electrode and gate electrode pairing. In contrast with the claimed seed layer with unconnected sections, Jones's pads couple all of the electron-emissive elements to the emitter electrode. This is disadvantageous for the reasons described above and in the specification.

Because Jones does not disclose or suggest electron-emissive elements grown on a seed layer that has a plurality of unconnected sections, claims 2, 5, and 6 are patentable over Jones.

IV. Claim Rejections – 35 U.S.C. § 103

Claim 1 was rejected under 35 U.S.C. § 103 as unpatentable over Jones in view of Applicants' admitted prior art (Fig. 1 of the present application). Applicants respectfully assert that claim 1 is patentable over this proposed combination because claim 1, as amended, recites "an electrically conductive seed layer overlying part of the resistor layer, the seed layer including a plurality of laterally separated sections." As explained in the previous section, Jones does not disclose a device that has a seed layer with a plurality of unconnected or laterally separated sections. Moreover, the admitted prior art was cited only for its disclosure of a gate electrode having lateral edges in approximate vertical alignment with lateral edges of the dielectric layer. As a result, the proposed combination does not disclose or suggest each of the limitations in claim 1, and claim 1 is therefore patentable over the cited art.

Claims 3, 4, and 7-11 were rejected under 35 U.S.C. § 103 as unpatentable over Jones alone, Jones in view of U.S. Patent No. 6,204,597 to Xie, or Jones in view of U.S. Patent No. 5,831,378 to Rolfson. Each of these claims depends, directly or indirectly, from claim 2 and therefore includes each of the limitations of that claim. In the Office Action, Xie and Rolfson were cited for their disclosure of the dependent limitations in these claims only. Therefore,

claims 3, 4, and 7-11 are patentable over Jones, Xie, and/or Rolfson for the reasons set forth in the previous section.

V. New claims

New claims 13-22 have been added to further claim embodiments of the invention. Independent claim 13 recites in part, "a seed layer including at least two laterally separated sections, each section of the seed layer electrically coupled between one or more groups of electron-emissive elements and the emitter electrode." Accordingly, claims 13-21 are patentable over the cited references for the reasons outlined above.

VI. Summary

Based on the foregoing, the application is in condition for allowance of all claims, and a Notice of Allowance is respectfully requested. If the examiner believes direct contact would help advance the prosecution of this case to allowance, the examiner is encouraged to telephone the undersigned at the number given below.

Respectfully submitted,

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